



Environmental Technology Verification Drinking Water Systems Center

April 2002

Introduction and Goals

The Drinking Water Systems (DWS) Center is one of several US EPA Environmental Technology Verification (ETV) Centers dedicated to producing credible environmental performance data. The EPA Office of Research and Development (ORD) leads the ETV Program.

On October 1, 2000, NSF International (NSF) entered into an agreement with the EPA to form an ETV Center dedicated to providing independent performance evaluations of drinking water technologies with the goal of raising awareness for new treatment technologies. The DWS Center represents the next phase of the ETV Program's Drinking Water Treatment Systems Pilot, which began in 1995 as a partnership between NSF and the EPA's National Risk Management Research Laboratory (NRMRL) and laid the groundwork for the new Center.

Concern about drinking water safety has accelerated in recent years due to highly publicized outbreaks of waterborne diseases and information linking ingestion of high levels of contaminants to cancer incidence. The 1996 Safe Drinking Water Act requires the US EPA to set numerical contaminant standards and treatment and monitoring requirements to ensure the safety of public water supplies. Since many small communities lack updated equipment to comply with new stricter regulations, emerging treatment technologies may offer a solution.

DWS Center Key Features

- ETV DWS Center testing verifies performance of commercially ready drinking water treatment technologies for use in small communities.
- A Steering Committee (SC) advises NSF and the EPA on the DWS Center's activities and direction.
- Protocols and Technology-Specific Test Plans (TSTPs) assure uniform testing.
- DWS Center oversight assures that quality data is produced during verification.

Benefits to Stakeholders

Equipment Manufacturers and Vendors:

- Reduction in general pilot testing requirements for state acceptance,
- Consistent and technically appropriate evaluation methods, and
- Reliable and independent test results.

Small Communities:

- Improved drinking water quality,
- Compliance with the Safe Drinking Water Act, and
- Faster state approvals of technologies at less cost.

State Regulatory Agencies:

- Credible independent test reports and
- Reduced dependence on staff to develop and implement testing protocols by reducing the amount of pilot testing for state acceptance.

Results and Current Activities

The Center's activities include development of verification protocols and test plans, independent testing and validation of equipment, conveying and supporting government/industry partnerships to obtain credible cost and performance data, and preparation of product-specific verification reports for broad dissemination. Emphasis is on the performance and cost factors of specific vendor systems that address the treatment of common small community problems, i.e., arsenic, microbiological contaminants, particulates, and disinfection by-products.

The Center currently has nine contaminant-specific verification protocols and 24 TSTPs that outline testing procedures. The contaminant-specific protocols include testing procedures for technologies that inactivate or remove microbiological contaminants, arsenic, nitrate, precursors to disinfection by-products, inorganic and organic chemicals, and radionuclides. As of April 2002, 25 verification tests and reports have been completed evaluating drinking water treatment technologies. The following technology types have been evaluated: ultraviolet (UV) radiation systems, microfiltration and ultrafiltration membrane systems, a nanofiltration system, on-site sodium hypochlorite generation systems, bag and cartridge filters, precoat (diatomaceous earth) filters, backwashable depth filtration with and without coagulation, reverse osmosis membranes, and ozone disinfection. Updated lists of protocols/test plans and verification reports can be found on the EPA and NSF web sites

<http://www.epa.gov/etv/verifrpt.htm#water> and http://www.nsf.org/etv/dws/dws_reports.html.

Future Activities

The Center's priorities for future work, based on EPA and stakeholder input, are as follows:

- Highest priority will be for small system arsenic reduction technologies (e.g. adsorptive media).
- Priority for harmonization of the ETV UV and Filtration Protocols with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). Testing will focus on ultraviolet technologies as well as bag/cartridge and membrane technologies.
- Stakeholders will aid the Center in determining its role in anti-terrorist planning for small systems. Some of the efforts being made by the DWS Center include a focus towards on-site generation of disinfectants to reduce or eliminate stockpiles of chemicals at utility sites.
- An increase in electronic communication.
- More cost sharing with stakeholders.
- The completion of two additional TSTPs in 2002: Test Plan for Removal of Synthetic Organic Chemicals (SOCs) by Adsorptive Media and Test Plan for Removal of Volatile Organic Chemicals (VOCs) by Adsorptive Media.

For more information about the ETV DWS Center, please contact:

Mr. Jeff Adams
US EPA Project Officer
Phone: (513) 569-7835
Fax: (513) 569-7185
Email: ADAMS.JEFF@epamail.epa.gov

Mr. Bruce Bartley
NSF Project Manager
Phone: (800) NSF MARK
Fax: (734) 769-5195
Email: bartley@nsf.org